

What is claimed is:

1. An intake air control apparatus for an engine comprising:
  - a shaft;
  - a throttle valve fixedly secured to said shaft for adjusting the degree of opening in an intake passage through a rotational angle thereof;
  - a permanent magnet provided on an end portion of said shaft with its N pole and S pole being positioned in a diametral direction thereof; and
  - a rotational angle detection sensor having a magnetoresistive element disposed in a spaced parallel relation with respect to said permanent magnet for detecting a change in the azimuth of magnetic flux of said permanent magnet thereby to sense a rotational angle of said throttle valve.
2. An intake air control apparatus for an engine comprising:
  - a shaft;
  - a throttle valve fixedly secured to said shaft for adjusting the degree of opening in an intake passage through a rotational angle thereof;
  - a first permanent magnet provided on an outer periphery of one end of said shaft with its N pole and S pole being positioned along an axis of said shaft;
  - a second permanent magnet provided on the outer periphery of the one end of said shaft in opposition to said first permanent magnet with its N pole and S pole being positioned along the axis of said shaft;
  - a rotational angle detection sensor having a magnetoresistive element disposed in a magnetic path formed by said first permanent magnet and said second permanent magnet in a spaced relation with respect to said shaft for detecting a change in the azimuth of magnetic flux of said permanent magnet thereby to sense a rotational angle of said throttle valve.
3. The intake air control apparatus for an engine as set forth in claim 2, wherein a gear wheel formed integrally with a plate fixedly secured to said shaft is mounted on an end portion of said shaft for transmitting torque from a drive motor to said shaft, and said first permanent magnet and said second permanent magnet are mounted on said plate.

4. The intake air control apparatus for an engine as set forth in claim 1, wherein said rotational angle detection sensor is disposed offset toward an N pole side or an S pole side.

5. The intake air control apparatus for an engine as set forth in claim 1, wherein a body having said intake passage and accommodating therein said shaft and said throttle valve is closed by a cover, and said rotational angle detection sensor is integrally formed with said cover by insert molding.